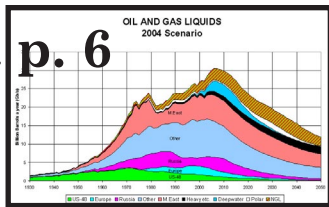


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THE OREDIGGER

Volume 87, Issue 7

December 6, 2006

THE VOICE OF THE COLORADO SCHOOL OF MINES, A SUPERIOR EDUCATION IN APPLIED SCIENCE AND ENGINEERING

World News in Brief

Felipe Calderon took the oath of office as Mexico's president in a ceremony Friday before Congress, preceded by a conflict between lawmakers divided over the tight presidential election.

British Prime Minister Tony Blair committed to keeping a British nuclear arsenal into the 21st century on Monday, saying the government planned to order new nuclear-armed submarines to replace its existing fleet.

Bushfires may have wiped out one of the last remaining outposts of healthy Australian koalas, scientists and animal rescue experts said on Monday.

Anti-American socialist Hugo Chavez said his claimed victory in the Venezuelan presidential election was "another defeat for the devil" after the bulk of returns showed him leading challenger Manuel Rosales.

Unable to win Senate confirmation, U.N. Ambassador John Bolton will step down when his temporary appointment expires within weeks, the White House said Monday.

Fiji military commander Frank Bainimarama said in a televised address he has assumed control over the country.

Oil Shale Supply



Courtesy Hilary Brown/Oredigger

Learn more about shale oil and scarce supply of on page 5.

Evaluating CSM Re-Org Committee At Work

By Zach Aman
Editorials Editor

Monday's Faculty Forum saw a contentious debate between faculty and administration over recommendations from the Campus Re-Organization Committee.

On September 6, 2006, Colorado School of Mines President Myles Scoggins said in a memo to the faculty, "My goal is to seek ways to improve our operations to deliver education and conduct research more effectively and to enhance our service to students, faculty and staff and to our other constituencies."

The Committee is charged with examining both the administrative and academic structures of CSM. Dr. Arthur Sacks, Committee Chair and

Associate Vice President for Academic and Faculty Affairs, said, "The Committee is designed to be reflective of the community as a whole. The task of organizing a university these days is extraordinarily complex and we recognize that."

"My goal is to seek ways to improve our operations to deliver education and conduct research more effectively and to enhance our service to students, faculty and staff and to our other constituencies."

Sacks reported that the Committee has been focusing on the evaluation of administrative structure, while it will focus on evaluating the academic structure this Spring. He stressed that the Committee only makes recommendations to the president; it doesn't have power to enforce change throughout the campus. Sacks said that the Committee will "offer a

See FORUM, Page 3

New Rec Center Opening Delayed

By Jason Fish
News Editor

Construction resumes on the new Colorado School of Mines recreational center as another winter storm is cleared away.

Recently there have been complications in the project that will delay the new center from opening on the original date of January 16th, 2007.

"It is a design as you go and build as you go project," said Bob Francisco, Director of Student Life.

Francisco explained this process as designing and building different parts of the project simultaneously. The construction company and contractors must handle several separate tasks at once. He went on to describe the alternative design method, which involves laying out all the plans at the start and not deviating from them.

"The advantage is the negotiation process," said Francisco. The designers, architects, contractors, sub-contractors, and consultants are able to evaluate each step in the project and

make changes as necessary.

Dr. Harold Cheuvront, Vice President for Student Life and Dean of Students, supports this method of construction. "The flexibility is key."

According to Francisco and Dr. Cheuvront, the contractor, Pinkard Construction, informed them the project was more complicated than first anticipated and they would need more time to finish, pushing the opening date back about a month.

Francisco explained how extensive the new center will be when com-

pleted. Both he and Dr. Cheuvront said such a delay is worth the wait.

"This is a building for 100 years," said Cheuvront.

The change in schedule has caused some confusion among the contractors, sub-contractors, and representatives of CSM. Francisco and Dr. Cheuvront have already met with all the involved entities to sort out the details and will continue to meet in order to establish a new opening date.

See PUSHED, Page 3

Clean Burning For Combustion

By Sara Post
Copy Editor

Researchers at the Georgia Institute of Technology have developed a combustor with low emissions.

"We must burn fuel to power aircraft and generate electricity for our homes," said Dr. Ben Zinn, Regents' Professor at the School of Aerospace Engineering, one of the primary researchers on the team. "The combustion community is working very hard to find ways to burn the fuel completely and derive all of its energy while minimizing emissions."

Called the Stagnation Point Reverse Flow Combustor (SPRF), the Georgia Tech device burns fuel with nitrogen oxide (NOx) emissions below 1 part per million (ppm) and carbon monoxide (CO) emissions below 10 ppm.

The combustor works by creating a low flow-velocity region at the closed end (stagna-

tion point) and forcing the reactants and the products to mix at the open end (reverse flow). The fuel, such as natural gas, can either be mixed with air before injection, or the two can be injected separately. In the latter case, the fuel and air are injected into the open end along the centerline of the combustor, slowing and eventu-

ally reaching a velocity of zero at the closed end. The flow then reverses direction.

The reverse flow causes outbound products and burning gas pockets to mix with incoming reactants. Ignition occurs in the middle of the device.

"Mixing with hot products increases the reactant temperature and the presence of radicals in the resulting mixture should lead to reduced ignition temperature," according to the paper written by the researchers.

The combination of reverse flow

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New Direction For CSM Look

By Zach Aman
Editorials Editor

Under former President John Trefny, a ten-year plan was developed to guide the Colorado School of Mines into the twenty-first century.

This plan outlines changes to the public relations policy of CSM. Carol Chapman, Special Assistant to the President, said, "Traditionally, we've had a fairly decentralized approach to marketing each department. It hasn't been highly integrated."

Marcia Williams, Director of Integrated Marketing Communications at Mines, added, "We feel that our name recognition and also what we do is known in Colorado. Get out of these boundaries

"We feel that our name recognition and also what we do is known in Colorado. Get out of these boundaries and that's where our challenge is."

and that's where our challenge is."

According to Williams, expanding the school's name recognition throughout the world is one of the main work points of the plan.

"We've certainly come to the point now where people want our name

to be out there more. I think we have a little bit of a challenge with our name; we're constantly straightening it out — who we are and what we do. We're sticking with it but what we need to do is explain it better.

We need to get the word out and

have it be an instant recognition," said Williams.

As part of shifting the school's public image, Williams explains,

Mines will adopt new marketing points: "Earth, Energy, Materials, and Environment."

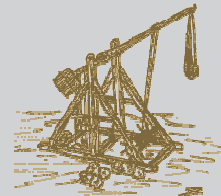
President Trefny created a committee under Williams that oversees marketing changes for the school. So far, the committee has produced a new five minute marketing video that school representatives will use in presentations. A thirty second condensed version will be available for internet usage. The committee is also working toward capturing student testimonials in "YouTube" style internet videos.

After the current phase of materials is completed, Williams plans to overhaul the school's website. "A website redesign is how we are going to get the word out."

The committee plans to bring in a top-notch company to deliver the new site. "We want user-friendly and we want it to be attractive and contemporary, but, most importantly, we want it to be very functional so it is a tool," said Williams.

Need EPICS II Credit? Compete in:

The 2007 E-Days Trebuchet Building & Launching Contest



Basic Rules:

- This year both trebuchets and catapults are acceptable.
- Trebuchet / catapult must be completely mobile (no anchors) and cannot be powered by electricity.
- Must be able to hit range of targets from 40 to 100 yards.
- 8 lb milk jugs will be used as shot.
- Cash prizes awarded for accuracy and destruction!
- Teams and trebuchets can be of any size, but you haul them to site.
- Trebuchets deemed unsafe may be disqualified.
- Even if you don't need EPICS II credit, have fun destroying targets with your own personal medieval instrument of destruction!

To receive EPICS II credit, project submission must be given to Dr. Knecht before Winter Break.

Contact jajmarti@mines.edu RE: Trebuchet for more information.

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Let Off Steam

Stress Free Zone Opens Soon

By Konrad Klett
Rec Sports Editor

Each semester during finals week, CSM holds an event known as the Stress Free Zone.

The function is planned to allow stressed out students to relax and forget about the pressures of school during the two times a year that the student body takes its final exams.



Before

It will be held in and around Ballroom A in the Student Center on Monday, December 11th from noon to 8 pm and on Tuesday, December 12th from 10 am to 4 pm.



After

As Mel Kirk, one of the organizers, said, the stress free zone is kind of a "return to kindergarten." There are numerous toys and games including Legos, checkers, chess, Lincoln Logs, Foosball, cards, and finger painting.

There is chocolate available and no homework allowed. The Stress Free Zone also has two chair massage therapists on both days. The massages are ten minutes long and are first-come-first-served.

The idea is to get students' minds off school and whether they will pass, fail, or excel at their finals, and get some free entertainment.

Graphics by Eileen Sullivan

Pushed Ahead

Continued from Page 1

"Right now is our final push to see what we can get done without extending the date further," said Francisco. "There is still some work to do after the construction is done."

Dr. Chevront and Francisco will be meeting in the next couple weeks with Pinkard officials and the project

architect, with the intent of having everything laid out by December 15th. Francisco said the new rec center will most likely be open in mid February.

More information on the new rec center can be found on the newly redesigned recreational sports website at http://www.mines.edu/stu_life/recsports/.

Are You Interested In Becoming a Teacher?

Teacher Education Program at Red Rocks Community College

RRCC offers classes in Teacher Education K-12. CSM students wishing to explore a career in teaching can take the following classes from RRCC which will transfer to Mines.

EDU 221 Introduction to Teacher Education (3 credits)

- Studies the historical, social, political, philosophical, cultural, legal and economic forces that shape the United States public school system as you explore teaching as a career choice.

EDU 275 Field Based Experience (co-requisite with EDU 221) (1 credit)

- Provides you with experiences in the "real world" of the classroom and gives you input for wise and early career choices.

EDU 261 Teaching, Learning and Technology (3 credits)

- Prepares you to integrate technology into teaching curriculum, while you design educational and training materials incorporating instructional technology. (May receive graduate level credit from CSM.)

Classes begin January 16, 2007

For more information contact Sharon Lantz
303.914.6541, sharon.lantz@rrcc.edu

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New Engine Out Of GTech

Continued from Page 1

and a low velocity region "is expected to allow the combustor to operate stably at lower inlet temperatures and/or lower fuel-air ratios, and, thus, produce lower NOx emissions," said the researchers.

Dr. Zinn, Adjunct Professor Yedidia Neumeier, Associate Professor Jerry Seitzman, and Professor Jeff Jagoda, all of the School of Aerospace Engineering at Georgia Tech, worked with visiting research engineers Yoav Weksler and Ben Ami Hashmonay and graduate research assistant Jeremy

Kenny.

According to the researchers' paper, the SPRF combustor is "a novel and very simple combustor concept that can operate stably over a large range of operating conditions with ultra-low emissions without experiencing combustion instabilities. The SPRF combustor concept should enable land-based gas turbines and aircraft engines to operate with low emissions, even when employing a non-premixed mode of combustion that increases safety and operability. The SPRF combustor concept should also be suitable for application in en-

ergy intensive industrial processes and a wide range of domestic, commercial, and industrial heating processes."

The project was funded by Georgia Tech and the NASA University Research Engineering Technology Institute Center on Aeropropulsion and Power.

"We wanted to have all the clean-burning advantages of a low temperature combustion process while burning a large amount of fuel in a small volume," said Dr. Zinn. "Our combustor has an unbelievably simple design, and it could be inexpensive to make and inexpensive to maintain."

Forum Sizing Up Mines

Continued from Page 1

suite of options, including the status quo, with explanations of the advantages and disadvantages of each."

From an electronic survey sent out this fall, Sacks reported that over 77% of administrative staff believe that Mines' current structure impedes "effectiveness and communication."

The Faculty Senate asked a series of questions, one of which requested contemporary models to Mines. Sacks said that the Committee investigated

many benchmark institutions to be learned from: Carnegie Mellon University, the University of Missouri-Rolla, Cal Tech, Michigan Tech, and the University of Colorado at Boulder. Sacks noted that all schools with similar goals and aspirations to Mines were considered.

An audience member voiced concerns about the "lack of qualitative information" in the presentation. Committee members responded that such data is "not readily available." Sacks said that "there's a significant anticipation of growth of numbers for

administration." A CSM Professor who wished to remain anonymous noted, "We hammer students all the time for failure to provide evidence to their conclusions."

CSM Professor Kadri Dagdelen, who also received a Bachelors, Masters, and Doctorate from Mines, said that he was very disappointed with the presentation because it didn't answer questions about identified problems and issues. "The Committee talked too much about administrative structure."

Tiers Over New Aid Plan

By Sara Post
Copy Editor

A recent inquiry showed that almost two-thirds of Colorado college students eligible for state financial aid did not receive any. Based on these findings, the Colorado Commission of Higher Education has created a new plan for financial aid distribution.

Currently, the state distributes financial aid packages to schools based on the number of students needing financial aid, and the school distributes the money on a first come, first serve basis.

The new plan establishes a stipend for the lowest-income students: \$1,057 for students at research universities, \$965 for students at four year colleges, and \$790 for students at community colleges. It is similar

to Colorado's College Opportunity Fund, which gives all in-state students a set amount of money on a credit-hour basis.

"Our goal is to get all of the information out there and bring as much certainty to the process as we can so that students do see that pathway to college," said Jenna Langer, Executive Director of the Colorado Commission of Higher Education. The state also wants to make sure that every eligible student is able to receive financial aid.

Many are finding fault with the plan, however.

"Creating a tiered system will be really detrimental for our most at-risk students," claimed Nancy McCallin, president of the Colorado Community College System. "It will affect their access to higher education." McCal-

lin also said that the plan favors large universities.

John Cooney, associate vice president of academic affairs at the University of Colorado, said, "What ends up happening is that there is an overestimate of the need in some schools and an underestimate in others."

An example of this, Cooney added, would be that a Colorado School of Mines student would receive a smaller percentage of the tuition, the highest in the state, than a student at another university, such as University of Northern Colorado, with a lower tuition.

The Colorado Commission of Higher Education has asked the legislature for a \$5.3 million increase in state financial aid to fund the new program.

Picture of the Week



Bruce Bugbee/ Oredigger
"Is this clear?" Emily Milian listens attentively as Dr. Luis Tenorio teaches Real Analysis. Real Analysis is taught by the Mathematics and Computer Sciences Department.

King of the Geeks

By Kevin Duffy
Staff Reporter



Courtesy Jeff Godwin
Geek of the Week Jeff Godwin enjoys CAPA, pi, and French formations.

Name: Jeff Godwin
Major: Geophysics
Year: Sophomore
Hometown: Highlands Ranch, CO

What is your best geek joke?

Q: How many programmers does it take to change a light bulb?

A: None, it's a hardware issue.

What is the geekiest thing you have ever done?

Spending countless Friday and Saturday nights with CAPA. I love you CAPA....

What is the geekiest thing you have seen at Mines?

In freshmen Chemistry lecture, Pavelich was telling everyone there was no class the Wednesday before Thanksgiving; some kid yelled before the entire class that his mom would not be there to pick him up until 3.

What are your thoughts on the ratio?

Mines * UNC = 1

What's the coolest thing in Science?

The more you think you know, the less you actually know.

What is your favorite math "thing"?

Pi. Not only does it show up in

a ton of problems, but I always found it interesting how it can stretch to an infinite value. That alone makes it worth consideration. It also helps that its name coincides with a delicious dessert.

How do you respond to the title, "King of the Nerds" (Jeff is a sophomore living in the dorms)?

I have a small army of freshmen under my command; I'm not going to lie. But I need a ring to rule them all...

What is the longest consecutive time you have spent on the computer?

Are we talking hours or days?

If you could be any geological formation what would it be?

Pierre Shale, because I would be French.

Do you consider yourself a

geek?

Definitely. It's awesome to be feared for your ability to integrate, rather than your physical size.

Do you know a Geek of the Week? Send suggestions to oredig@mines.edu

"Not only does [pi] show up in a ton of problems, but... It also helps that its name coincides with a delicious dessert."

Honesty, Integrity, Tau Beta Pi

By Jason Harms
Staff Reporter

Does it ever seem like academic achievement doesn't get anywhere? The Colorado School of Mines chapter of Tau Beta Pi aims to recognize students who show both academic

success and outstanding character. The chapter completed the recruitment process to select its newest members last week.

The purpose of Tau Beta Pi is "to mark in a fitting manner those who have conferred honor upon their Alma Mater by distinguished

scholarship and exemplary character as undergraduates in engineering, or by their attainments as alumni in the field of engineering, and to foster a spirit of liberal culture in engineering colleges."

Founded at Lehigh University in 1885 by Dr. Edward Higginson Williams Jr., the Tau Beta Pi Association is an engineering honor society. The CSM Colorado Alpha chapter was officially added on May 5, 1905.

Alone, Dr. Williams conceived an organization, gave it a name, designed its governmental structure, drew up its constitution, prepared its badge and certificate, established its membership requirements and planned all of the necessary details for its operation including the granting of chapters and the holding of conventions.

To be eligible for the recruitment process, one must be an engineering major in the top eighth of the junior class or top fifth of the senior class. The selection process includes an interview and a special Tau Beta Pi quiz. The interview is designed to "see if the student portrays exemplary character and believes in integrity, honesty and excellence in engineering," said Eirick Phytilla.

This year has the largest recruiting class Phytilla has ever witnessed at CSM. The Colorado Alpha chapter has 55 active members and 47 students are being recruited this year. According to Phytilla, as long as the recruits show that they stand for what Tau Beta Pi stands for, they have a good chance of being invited to join.

Holiday Volunteer Opportunities



Denver Botanical Gardens
Aid the Blossoms of Light Event.
December 2 – January 21
Contact Heather Boor, 720-865-3537



Denver Rescue Mission
Christmas Banquet (December 22)
Santa Shop (December 15-16)
Contact Stacey Vlasicak, 303-313-2459



Girls Inc. of Metro Denver
Gift Wrapping (Week of December 11):
Wrap presents for Girls, Inc. members.
Contact Elizabeth Green,
303-893-4363, x124



Salvation Army Denver
Holiday Meals and Other Opportunities
(Throughout December)
Contact Mary Orem, 303-866-9280



Volunteers of America
Adopt-a-Family (December 1-20)
Christmas Baskets (December 1-25)
303-297-0408

The Tau Beta Pi Colorado Alpha chapter hosts and attends conferences year-round. The National Convention is held each fall and the District Convention takes place in the spring. The conventions have many interactive sessions to get members involved.

CSM's "Tau Bates" recently hosted an "Engineering Futures" session. Moderators came to CSM to teach students about professionalism in engineering.

The local chapter at CSM organizes the trebuchet competition during E-days. Many teams are needed for this competition. If approved by Dr. Knecht, students can receive EPICS II credit for launching one gallon jugs 100 yards.

Tau Beta Pi's magazine, *The Bent*, was established at the 1905 convention. This magazine carries advertising of numerous universities and major business firms in the engineering field. As of July 31, 2003, there were more than 75,000 life subscribers. Annual subscriptions are just \$10.

On January 1, 1974, the Sigma Tau Fraternity merged into the Tau Beta Pi Association. The action was taken by the collegiate chapters of the two organizations following lengthy study and recommendation by their Councils. The basis of the merger was the conviction that a single, stronger honor society would better serve the engineering profession.

The modern yell embodies the organization's morale: "Calculate, Innovate, Try, Try, Try! Integrity, Honesty, Tau Beta Pi!"



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(veg, chicken, beef, pork)	Happy Family	Kung Pao Chicken
Potato Pork	S&S Chicken	
Vegetable Fried Rice	Sweet & Sour Fish	Chicken Garlic Sauce

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Large Drink.....\$1.50

Pitcher.....\$4.25

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“The underground supply of oil cannot much longer be depended upon to supply the ever increasing demand, pointing unerringly to the one permanent supply of the raw material which we have -- the deposits of oil shale. Whether we wish it to be so or not, we shall soon be forced to resort to the oil shales for our supply of oil.”

Victor C. Alderson, ScD., President, Colorado School of Mines in *The Oil Shale Industry*, 1920.

Every Last Drop

Oil Shale Potential Remains Untapped

By Katie Kocman
Staff Writer

The world continues to consume far more oil per year than is discovered, a trend that began in 1980. Currently, one barrel of oil is found for every four barrels that are consumed.

The U.S. is the world's largest oil consumer. The majority of consumption is used for transportation, but it is also used as the chemical base for thousands of products. There are approximately 630 million vehicles in the world, 200 million of which belong to U.S. residents.

As conventional crude oil becomes scarcer, other methods such as oil shale, tar sand (also known as oil sand), gas hydrates, natural gas, coal, and other hydrocarbon methods must be utilized. Oil shale offers a way to supplement the growing oil deficiency.

Western Strength

Oil shale deposits are found all over the United States. However, deposits in the central and eastern regions are very thin and irregular, so this resource can be difficult to find. Even if a deposit is found, the oil yield is often very little.

Deposits found in Western U.S. tend to have a greater thickness and are also richer. To be considered a “rich” deposit, twenty five or more gallons of crude shale oil must be extracted per one ton of rock. Some deposits found in the western U.S. contain over one hundred gallons of crude shale oil per ton of rock.

The U.S. is supplied with approximately three-fourths of the

world's supply of recoverable oil shale resources. Colorado, Utah, and Wyoming are the states that contain eighty-five percent of these resources. In contrast, less than five percent is

curred in Switzerland and Austria. The presence of oil shale resources was also known by the Ute Indians. They described it as “a rock that burns” to settlers.

There has not been a commercially successful oil shale venture in the United States for over one hundred years. The number one reason for

this lack of success is due to the low cost of fossil fuels.

The first oil well was drilled in Titusville, Pennsylvania in 1859.

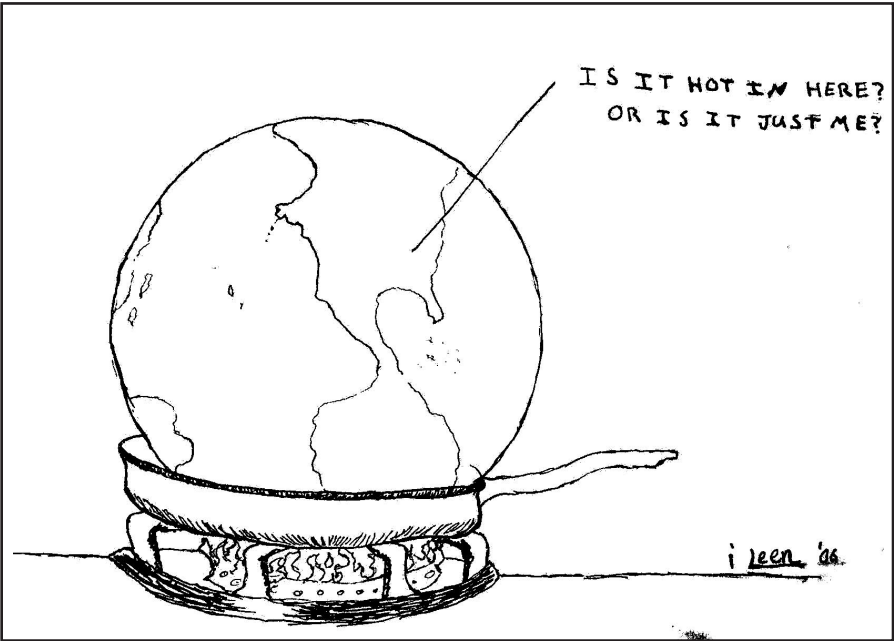
PROS

- *Resource continuous within ancient shorelines
- *Cost of exploration is lower compared to conventional crude oil
- *Relatively more safe than traditional petroleum exploration

CONS

- *Recovery costs are higher for shale oil than conventional crude oil
- *Must be treated with hydrogen to create synthetic crude oil to be refined into petroleum products
- *Massive amounts of materials must be handled

found in the country's lower 48 states. It is estimated that there are over 620 billion barrels of petroleum available from oil shale reserves worldwide.



Where does it come from?

Approximately 50 million years ago, the oil shales of the Green River Formation were deposited. These deposits were lake sediments and contain kerogen, which is very similar to conventional crude oil.

Boom and Bust

The first use of shale oil was recorded in the 1300s. This event oc-

Since then, liquid petroleum has always been much more economically efficient to produce.

Oil shale development consists of continuous booms and busts. Booms are brought on during times of energy crises. These are typically followed by busts during which less expensive alternatives are available.

The first oil shale boom was during

1915 when it was reported that the U.S. might be been running out of petroleum. However, the West Texas oil fields were discovered and developed in the late 1920s, which caused an oil shale bust.

In 1944, interest in oil shale was again renewed due to lack of conventional crude oil reserves to supply the country in the future. Again, this boom went bust due to nuclear energy and the discovery of vast deposits of oil in the Middle East.

Then, in 1973, due to rising prices, the United States realized its dependence on foreign oil and a second oil shale boom resulted.

History repeated itself yet again and this boom ended. OPEC, Organization of the Petroleum Exporting Countries, lost control of oil prices and subsidized shale oil could not compete with declining prices for conventional crude.

Keep It Clean

Waste disposal is the most serious environmental and health hazard associated with oil shale. A considerable amount of material must be mined and processed and this leaves spent shale.

Spent shale consists of numerous heavy metals and salts. Toxins may be leached into the environment. Another concern is air quality. Facilities that process oil shale must comply with Clean Air Act provisions.

Now what?

The Federal Government owns much of the oil shale in Utah and Wyoming. Beginning in the 1940s, the government became involved with

oil shale research and development.

The Energy Security Act was passed by Congress in 1980 in order to promote non-petroleum energy so U.S. dependency of foreign oil would decline. However, due to the lack of an energy crisis of substantial size or dramatic decrease of crude oil, the

development of oil shale has been minimal.

Out of the Shell

During the 1970s, the Shell Exploration and Production Company was involved in the oil shale boom in Colorado. Shell has an in-situ



Courtesy Wikipedia.com

For every four barrels of oil consumed, only one is discovered. How will the three excess barrels be filled?

heating technology research program. They have developed and patented the “In-situ Conversion Process” (ISP).

This process has the potential to produce high quality fuels from oil shale, oil sand, and coal in an economically and environmentally sound approach. Holes are drilled from the surface to the oil shale zone.

Electrical resistance heaters will then be inserted into these holes. These heaters will gradually heat the oil shale to between 650 and 700 degrees F. Kerogen present in the oil shale will be converted into oil and gas.

It is predicted by Shell that the ISP will recover over ten times more oil and gas per acre than traditional processes. This process is also environmentally sound in that it requires less water.

Shell is currently expanding with more in depth research expected to continue until 2010.

THE OREDIGGER

Editorials

Editorials Policy

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Predicting the Fallout of World Oil Supply

The Global Impact of Reaching Peak Oil Production



Zach Aman
Editorials Editor

During the 1950s, Dr. M. King Hubbert put forth a set of rules that govern basic resource depletion:

- “Production starts at zero.”
- “Production then rises to a peak which can never be surpassed.”
- “Once the peak has been passed, production declines until the resource is depleted.”

Currently, Hubbert's Peak indicates depletion of half of the world's oil resources. However, there is an intrinsic problem in estimating peak production. Hubbert's theory gives us a few tools to hone this estimation:

- How much oil we've extracted so far

- The amount of oil that we know we can extract
- The predicted amount of oil that still lies undiscovered

If we sum these three amounts, we can obtain an estimate for peak production. Dr. C.J. Campbell compiled a study along these lines that concluded world oil production would peak 1,750,000,000,000 barrels in 1999.

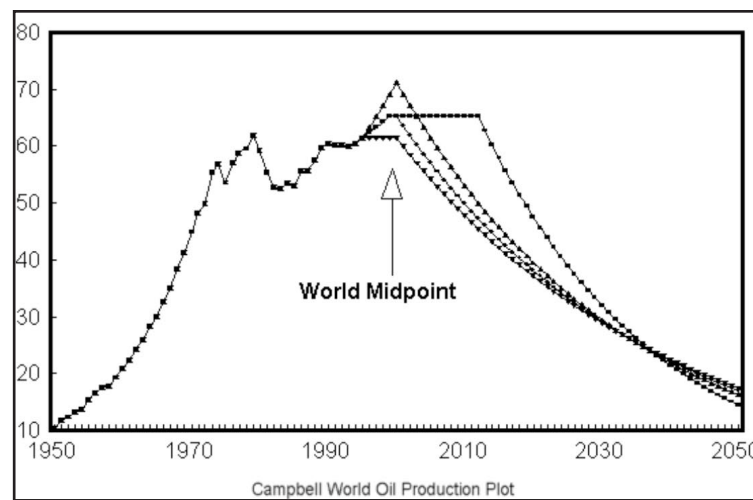
Regardless of political sentiment, peak oil production is a daunting issue. It's a fact that the amount of oil on the planet is finite and non-renewable. Why is this getting so little attention? America took interest when gas prices skyrocketed, but

then the underlying issue became old news.

Many neo-conservatives regard this opinion as alarmist. They're correct in the assertion that the graph of Campbell's predictions is intimidating. It would be a terrific cost to outfit the world for alternative energies if oil estimations turn out to be low. However, it would be of far greater cost to face the prospect of depleted oil reserves and no backup plan. This debate derives back to the notion of spending a dollar today and saving ten tomorrow.

Another popular opinion asserts that capitalism will eventually curtail the oil industry; when gas prices become too high, consumers will purchase more efficient vehicles and effectively increase the demand of alternative fuels. While this is a correct economic argument, there are far more variables in play here.

On a macro-economic scale, waiting for the “bust” of the oil industry without the installation of a comparable energy system will result in the further economic destruction of oil-producing third-



Courtesy Dr. C.J. Campbell

world nations.

On an environmental scale, waiting for the “bust” of the oil industry will result in the production of more greenhouse gases that might have been avoided.

On a social scale, waiting for the “bust” of the oil industry will result in a widespread panic. Innovation is a step-wise process; energy demand cannot shift from oil to alternative energy inside a decade without the accompaniment of public frenzy.

When you leave Mines, will you buy an Envoy to fulfill personal desires or will you buy a Prius to ensure a better future for all? The unique aspect of the oil crisis is such that it can't be solved in one step or by one entity. The only true solution is a proactive approach, properly executed with the support of the majority. The next time you have the option of walking or driving to campus, think about taking a step toward progress.

Duck, Derrick Dichotomy

Inverse Faces of the Oil Industry

Jason Harms
Staff Writer

Economics

Of the factors that affect economic growth, the industry of oil and gas is one that holds a stronghold in America's economy today. The economy in the United States is greatly affected by oil and gas. When there are large reserves and an increase of active drills in respect to oil, the economy seems to receive a boost. This is because prices for such things like gas and oil fall and people are able to consume more gas at a lower price. The prices of other products also drop, because petroleum products are used to produce most of the goods in the United States. People working in these industries have more job openings and more jobs filled, therefore creating a lower unemployment rate and a higher national per capita income. The need for substitutes is not there, so consumers will consume oil and gas at a growing rate. Since people use oil and gas for so many different things like heating their homes, driving their cars and a variety of other things, the overall economic wealth for the consumer will rise.

Environment

Although much of the world depends on the production and the trade of oil to fuel its economies, these activities can cause severe damage to the environment, either knowingly or unintentionally. Oil production and transportation can disrupt the human population and the animal and fish life of the region. Oil waste dumping, production pollution, and spills wreak havoc on the surrounding wildlife and habitat. It threatens the extinction of several plants and has already harmed many land, air, and marine animal and plant species. The environmental damage that is a result of oil extraction and production can also directly affect human life in the region. Damage can include pollution of water resources and contamination of the soil. Humans are affected by environmental devastation because it is damaging to vegetation, livestock, and to the health of the human body itself. Oil spills can interfere with the normal working of power stations and desalination plants that require a continuous supply of clean seawater, and with the safe operation of coastal industries and ports.



Alternative Energy Systems

A Boom in Design Engineering for the CSM Community



Dr. Robert Knecht
EPICS Program
Director, CSM

The Colorado School of Mines (CSM) has a vibrant history of research and design associated with the recovery of fossil fuel resources. An integral component of the mission of CSM is to educate students concerning recovery, conversion, and utilization surrounding our natural resources ensuring appropriate use in a sustainable global society. The Petroleum Engineering and Chemical Engineering – Petroleum Refining Departments were founded to develop the technical workforce for the petroleum industry. Over the last couple of years, the Design (EPICS) division has observed an increase in energy projects tied to the increased prices for fossil fuels. Rather than examining the litany of alternatives and their advantages and disadvantages, I have chosen to describe some of our projects, categorized in Figure 1, which provide testimony to the interest in alternate energy in our region.

Consumption and Performance (Energy Audits)

The Colorado Energy Science Center (CESC) served as a facilitator for a series of projects sponsored by Boston Market. They contracted with the division to conduct data analysis of energy usage, total energy consumption, and peak demand in its food stores. Based on comparative analysis, Boston Market implemented conservation programs including lighting modifications and HVAC monitoring and controls to reduce energy consumption.

We expanded these analytical capabilities through a project sponsored by the EPA Energy Star Program. CSM teams used Energy Star techniques to benchmark K-12 schools within rural Colorado school districts. The project also created a model for Energy Star, which encourages dissemination of the program to other universities and rural school districts.

Solar Systems

The Solar Decathlon project exposed teams to the design of efficient solar-powered houses. Solar energy technologies are clean and reduce pollutant emissions. This project initiated a series of studies in which teams assessed the operations and feasibility of photovoltaic, solar thermal and integrated systems to provide energy.

Photovoltaic (PV) modules convert sunlight into electricity. They need to face the sun directly whereas flat plate modules can be fixed. The

National Renewable Energy Laboratory (NREL) sponsored a project to improve sun-tracking and stability for PV modules. A CSM team refined NREL's testing equipment to improve the tracking systems.

Family farms use large amounts of electricity to operate irrigation systems. Current increases in energy costs have caused utility bills to become a significant portion of the farming costs, to the extent that smaller farms are no longer viable. Several teams explored solar systems that met the needs of farmers and integrated the technology into requirements established by the utilities.

Grand Living is a 23 year old assisted-living facility that had been equipped for a solar thermal system. The system never operated as designed. The solar panels and tanks were still in place but we knew very little about the system and whether it could be made operational. Four teams determined that the system was operable and developed a strategy to upgrade the system. A local resident of Granby donate \$20K to initiate the upgrade.

Geothermal

Geo-thermal heating can reduce demand for non-renewable resources such as electricity, natural gas or propane, thus reducing costs and making potential business using these resources more competitive. The owner of Shadows Ranch proposed an evaluation of

geothermal activity in the vicinity of his property near Georgetown. Working with the Town of South Fork, iCAST, directed teams to look at opportunities for using local geothermal resources.

DOE's Rocky Mountain Oilfield Test Center (RMOTC) sponsored a

series associated with sustainability of these processes. These hurdles hinder the success of small scale units but create opportunities for our students to creatively develop these opportunities.

For most of us in the United States, the cost of fossil fuels

continues to offer the most feasible energy sources. As the price of these fuels goes up, however, the interest in alternate energy sources also increases. These projects

highlight the importance of research and development to resolve technical issues confronting alternate energy systems. In cases such as the Grand Living project, the solution is straight forward. The bio-diesel systems are complex. Regardless, these projects expose CSM students to a variety of technical issues as well as open-ended processes. The assessment of alternate energy technologies has become a boom to the engineering design programs.

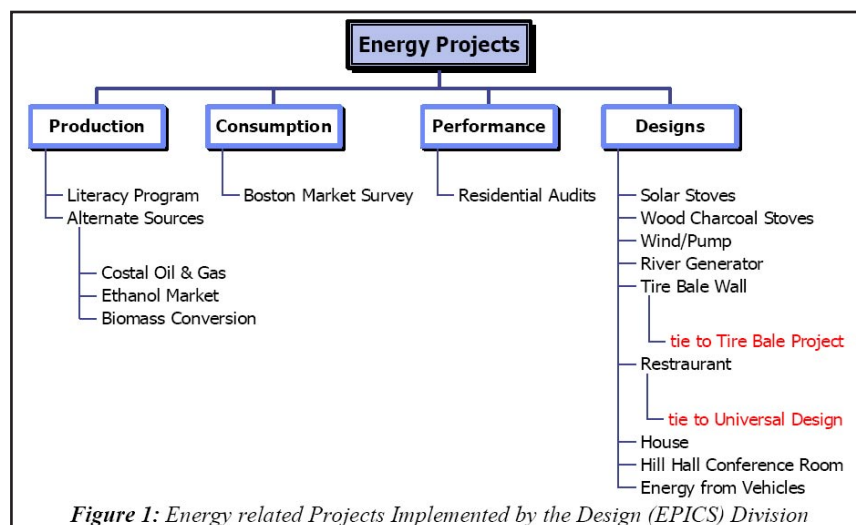


Figure 1: Energy related Projects Implemented by the Design (EPICS) Division

couple of projects exploring ideas focused on environmental and sustainability issues such as what to do with the quantity of hot water generated from oil recovery projects. The goal was to assess conceptual feasibility of using alternate energy sources for creative projects supporting the fossil fuels industry. Our teams produced several ideas for recovering energy from the hot water to reduce energy consumption at the facility.

Bio-Diesel

Bio-diesel is a biodegradable and cleaner burning diesel replacement fuel made from natural, renewable sources such as new and used vegetable oils (canola, mustard, sunflower or soybean) and animal fats. The division joined in partnership with iCAST to explore the potential of smaller capacity systems to reduce costs. These systems cannot afford to refine the glycerol slurry, to recover the methanol or to dispose of the waste water produced by the bio-diesel processing. This trans-disciplinary project also involves legal and economic is-

Duffy's Corner



By Kevin Duffy
Staff Writer

Surely many, if not all, of us at CSM come to table with the mindset of, "Let me get my degree so I can run away from this place as fast as possible." This thinking, however, represents an easy mental trap. If all you can think about is how great life will be when you finally get out of CSM, then your expectation ultimately becomes a self fulfilling destiny.

As I wander around campus, conversing with my friends and colleagues, I try to discover these concealed issues, burning deep within the student population. However I expectedly come across the same shallow and individualistic apathy that CSM is famous for. At a certain level, I understand the argument presented by most; "I barely have time to sleep, let alone concern myself with anything other than school." Although really none of us can complain, we choose to attend school at Mines knowing exactly what lay ahead. So stop complaining about CAPA and C++, and start realizing that the world is much more than a complex set of Physics problems.

Certainly I am not suggesting every engineering student read the Wall Street Journal daily or watch FOX and CNN news channels while trying to finish their Statics homework. I am simply asserting that people, students of CSM, become aware of their environment. You should not be content with merely accepting the circumstances of a situation and watching it pass you by. Question those circumstances and reach for the solution to the greater issue at hand. Many people feel they are but one voice, however often that voice is part of a silent chorus waiting to be unleashed.

CSM was originally founded as a public research university and continues this tradition today. Naturally, this enables an environment where elitist professors seek employment at CSM, not because they wish to teach and communicate their vast knowledge to the students, but rather to engage in personal research endeavors. Regardless, the purpose of a college community is to assemble a group of learners and educators interested in a common goal of advancing the knowledge and experiences of those in the community. Thus the professors, lecturers, and administrative staff are here to serve you and me; the student. Never forget your place in the community or the power you hold to change that which you deem unjust.

Ultimately throughout this process of questioning and discovering, the community of Mines becomes a stronger institution; not because of any changes made, but rather due to an active student population who cares about their school. Some who read this may be graduating in the next two weeks; others may be here for the next 10 years. Nevertheless, you should accept the fact that CSM is your home for the duration of your stay here. You should care for it as you would a younger sibling. Become actively concerned with what happens, affect yourself with the outcome of school decisions; become a member of the community. I guarantee that when you do, you will benefit from a richer college experience. Please send Duffy your local concerns: kduffy@mines.edu.



A Multi-Ethnic Amalgamation

Looking at Diversity in the CSM Community

By Andrew Aschebrenner
Staff Writer

Diversity has always been a defining issue in America, from the signing of the Declaration of Independence to the right to vote for women to the current debate over same-sex marriage. Simply put, diversity is what makes all people different, whether it is something that is physically evident, like race or gender, or something that is not, like financial situation or sexual orientation. "Above and beyond, it is difference in thought and perspective," says Terre Deegan-Young, a counselor at Student Development and Academic Services.

The exchange of ideas is particularly important to growth in all areas of knowledge. This makes learning about diversity important in everyday life. Linda Mohammad, the President of the International Student Council, says, "It is crucial to understand that people are raised differently, regardless of whether or not they come from the same country." Keeping an open mind to those differences is very important in terms of diversity.

Unfortunately, diversity is a very political issue. It has been used to divide, rather

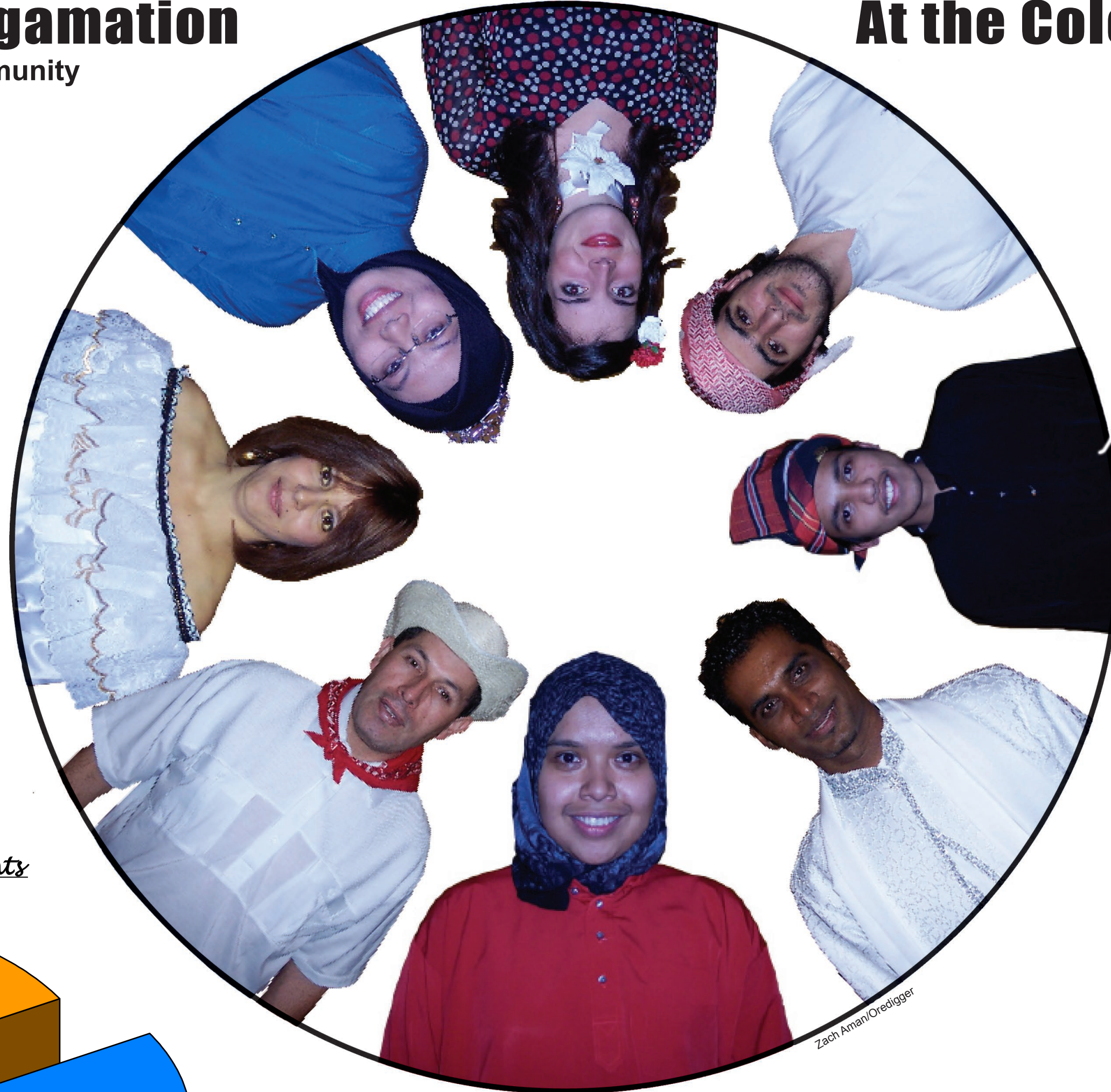
than to unite, and it has suffered from this. Political leaders cringe when they hear the word 'diversity' because they are afraid of offending people who think differently. An uncountable amount of people have lost their lives because leaders could not handle diversity.

The much-discussed 'ratio' comes up a lot in conversation, but it only shines the spotlight on one small element of diversity. At CSM, people have a lot in common on the surface, but there is still diversity. To find it, however, a search is necessary.

Diversity at CSM is made up of many different things. A large part of it is evident in a survey done by the Student Development and Academic Services office. It asked "What do you bring to the Mines community?" Among the answers were "I can fit my fist in my mouth" and "I love AIRHEADS." The responses are fascinating, and it goes to show that diversity is found everywhere you look.

The statistics say that the CSM community is mostly male, mostly white, mostly Coloradan. The challenge is

See COMPLEX, Page 9



Zach Aman/Oredigger

At the Colorado School of Mines

A Complex Issue Facing All

Continued from Page 8

to overcome the statistics. "College is the perfect spot to initiate one's awareness of diversity," says Mohammad. Within CSM, diversity is found mostly through interaction. "Working with diverse people brings about an interest in learning, and it helps growth as a person," notes Roz Parker Yocom, a technician at Arthur Lakes Library.

Diversity is a very complex issue. There are an infinite amount of variables, and the only way to find their values is through communication. The ultimate goal of this conversation about diversity is respect. Many groups have a focus of gaining this respect, and their goal is easily achieved through celebration. Recently, International Day celebrated ethnic diversity at Mines. This celebration introduced international students to other students who could gain from their perspectives.

In a way, every student

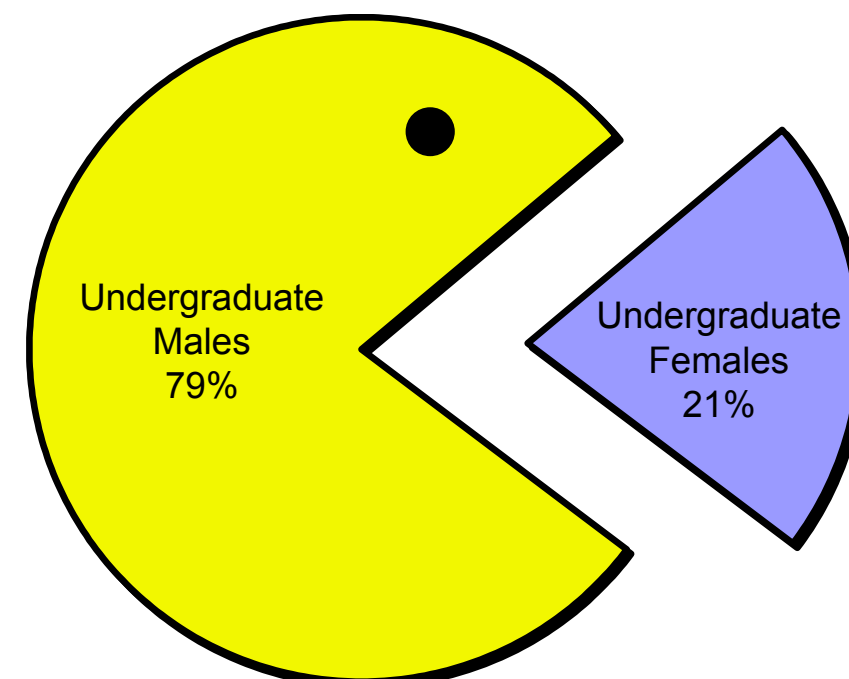
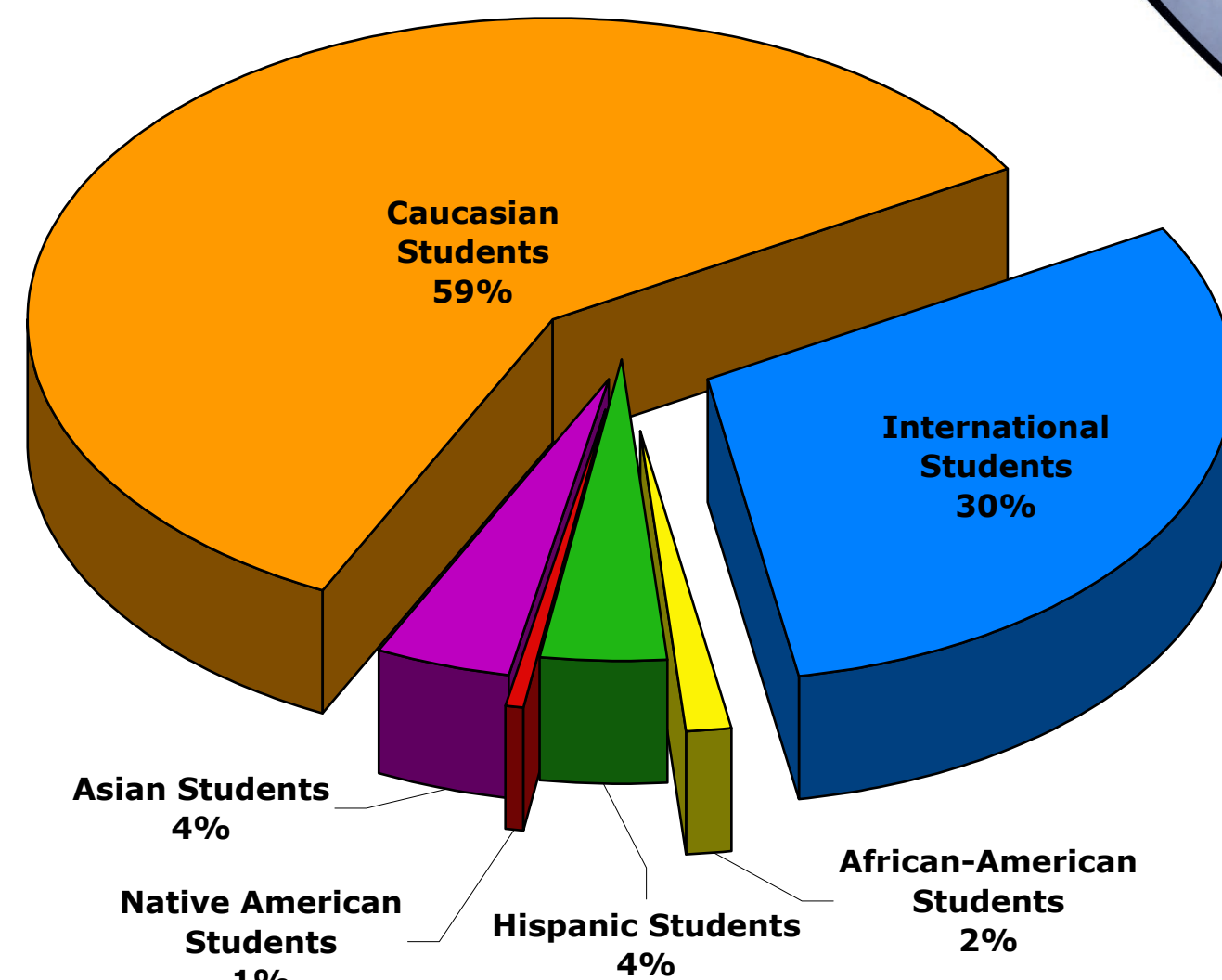
organization celebrates a certain element of diversity. At CSM, the large number of organizations shows a hidden diversity and also a hidden appreciation. "We definitely have a respectful community here," says Deegan-Young. The next step is being more welcoming, and there is always an effort to achieve this step.

"It is crucial to understand that people are raised differently, regardless of whether or not they come from the same country."

Diversity is ultimately a very challenging issue, because each person has a different perspective of the world and the people in it. "Your parents fit you with a pair of basic glasses to see the world with. Now, you have an opportunity to change the lenses, and therefore expand your view of the world," comments Deegan-Young. Advancing the perspective of the world has been shown throughout history to be beneficial. The question remains, "How do you advance your perspective?"

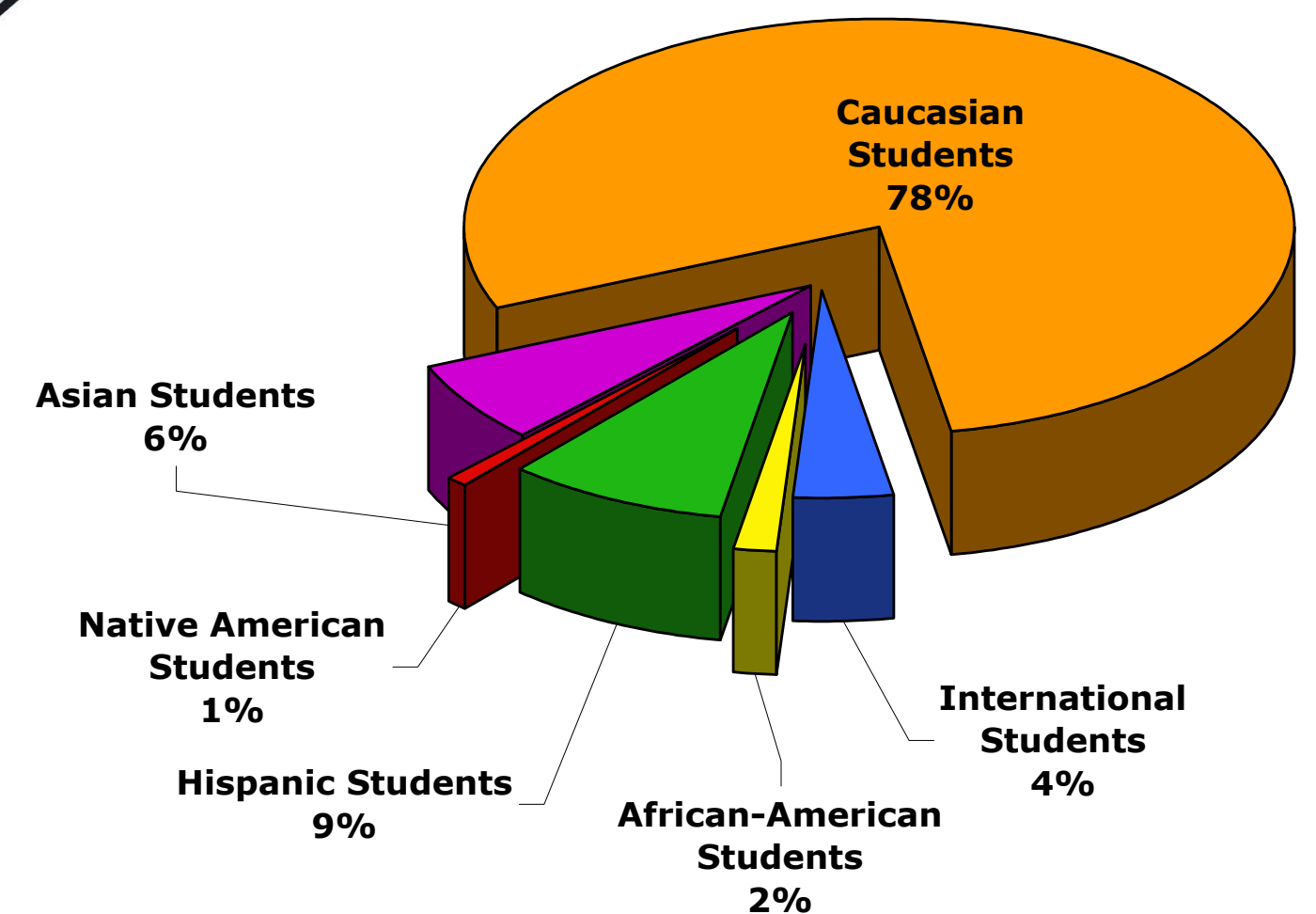
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Diversity of Graduate Students



Data from the CSM President's Committee on Diversity

Diversity of Undergraduate Students



Protect Your Nuts

Blond Bond Takes It Where It Counts In *Casino Royale*

By Konrad Klett
Asst. Sports Editor

The new James Bond film not only has a different actor playing 007, but a totally different style than the last several Bond movies. *Casino Royale* was the first novel by Ian Fleming about the character James Bond, so the movie is a sort of prequel, although it is not set in the early fifties but rather the present day. This movie also marks the first time an Ian Fleming novel has been used for a movie since *The Living Daylights* in 1987.

The movie is about how James Bond became 007 and received his license to kill. From what I have seen, the movie is very close to the book, despite the fact that *Casino Royale* was written in 1953. Bond is more cold and ruthless in this movie than in any other.

Say what you will about Daniel

Craig's blond hair or height (5'11"), but his acting is amazing. James Bond is supposed to be an icy killer but also a suave playboy who can match wits with anyone. Craig pulls this off very convincingly. There is a particular torture scene in which Craig demonstrates not only Bond's human vulnerability, but also his incredible attitude in the face of horrific circumstance. The man literally cracks jokes at his torturer and laughs in his face after screaming in agony.

While not the most recognizable actor, at least before *Casino Royale*, he has been in a few noteworthy films such as *Road to Perdition* (alongside Tom Hanks), *Munich*, *Layer Cake*, and *Tomb Raider*. Craig easily changes from brutal killer to charming lady-killer. He could even be the best

Bond since Sean Connery.

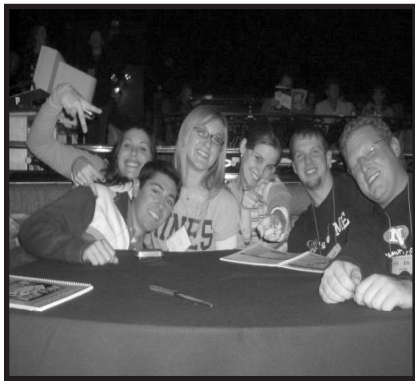
Believe it or not, the Bond girl is actually a good actress. Eva Green, who plays the character Vesper Lynd, shares smartly written and convincing dialogue with Craig in several scenes. Bond movies are expected to have entertaining special effects, sexy woman, beautiful cars, and exotic locations; *Casino Royale* has all that in addition to a great plot and likeable (or hate-able) characters. The usual pauses between action sequences or love scenes, when you are waiting for something fun to happen, are replaced instead by a story line and character building. Don't just see this movie because it is another James Bond movie, or even because it is another good Bond movie; go out and see it because it is just a good movie.

Big MAC Daddy

Mines Activity Council has Huge Plans for Next Semester

By Becca Hubis
Guest Writer

The Mines Activities Council has already started planning their events for the Spring semester! As always, there will be numerous Thursday Night Movies and Friday Afternoon Clubs. We've also got tons of special events planned, including the ever-popular Regurgitator Stevie Starr!

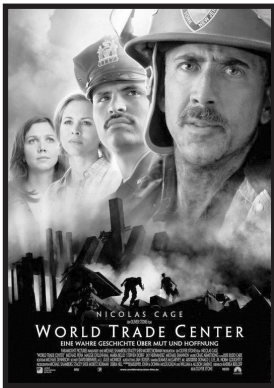


Members of the Mines Activity Council chill out in Reno, Nevada.

E-Days 2007 is going to be awesome!! We can't tell you too much yet, but it will be March 29th-31st, so clear your calendars!

Also, come to the Ballrooms this Thursday night to see the controversial *World Trade Center* with Nicolas Cage. Free Popcorn and 50 cent drinks! Don't miss the last Thursday night movie of

or band you'd like to see on campus? Let us know! Drop us a line at mac@mines.edu! Remember, we're here to keep you entertained! We look forward to seeing all of you at next semester's awesome events!!



the semester.

Do you have an event or comedian

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Reel Geek

A film geek writes about geeks on film

By Jen Schneider
Guest Columnist

Usually in this column I review films that my students recommend, and I recommend a classic or cult film for them to see in return. I'm not teaching my class "The Scientist and Engineer in American Film" this semester, but I know if I was, my students would have insisted I see *Anchorman: The Legend of Ron Burgundy*. Below is a review of this film, followed by a review of a classic. And I'll be teaching "Introduction to Film Studies" in the spring, so make sure to keep an eye out for more "Reel Geeks" then!

My Students' Pick:
Anchorman: The Legend of Ron Burgundy (2004)

My Pick:
Network (1976)

Boy. Nothing wraps up a holiday weekend like a good *Saturday Night Live*-spinoff comedy. My husband went to the video store to pick up some movies for the kids and brought home for me *Anchorman: The Legend of Ron Burgundy*.

Unlike *Anchorman*, the movie *Network* is not a comedy. But it is about how we make and see news, it's a quintessential film from the 1970s, and it features an anchorman Howard Beale (Peter Finch) who loses it on the air. The similarities end there.

My feeling is that you have to be in the mood for this kind of movie. If you're worried about work, or you just broke up with your girlfriend or boyfriend, or you take yourself too seriously, *Anchorman* is probably not for you. But if you're just trying to wind down on a Sunday night after eating turkey for three days straight, this kind of movie will be right up your alley.

Network follows the fortunes of Beale, who is aging and staid in an era when television is becoming flashier and more sensational; as a result, his ratings begin to plummet, and the network decides to let him go. In response, Beale makes a bold threat on the air (I won't spoil it for you by telling you what it is), and the network's ratings skyrocket.

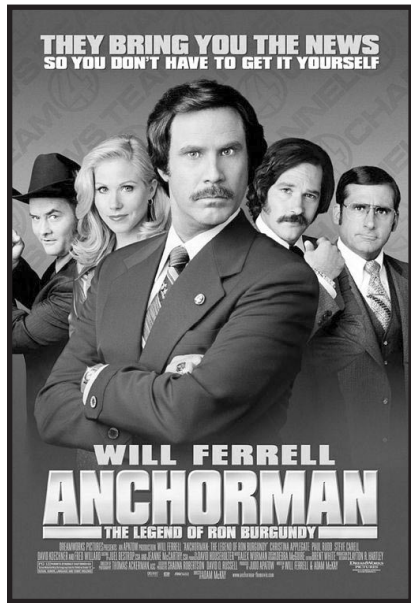
Anchorman stars Will Ferrell as Ron Burgundy, a good ol' boy newsman of the 1970s, that golden age when men permed their hair and women wore polyester bendovers. The movie is a showcase for Ferrell's brand of improvised humor and zaniness, but it's also a spoof of 70s-era action shows like *Charlie's Angels* and *Hawaii 5-0*. Maybe that's why I thought this movie was so entertaining—it riffed on popular culture from my youth.

So now, the network is faced with a dilemma: they have fired Beale, thus leading to his on-air pronouncement. But now ratings are high because of what he threatens to do if he is fired, so what to do with him?

Give him his own show, of course!

Network is a classic satire of the modern television era. It won't make you laugh like *Anchorman* might, but it will provide you with food for thought.

So check it out. That is, if you aren't too full of turkey.



Courtesy impawards.com

But there's also something enjoyable about Ferrell's movies in general. He's the ring-leader for the so-called "frat pack," that group of comedians that includes Jack Black, Ben Stiller, Luke and Owen Wilson, Vince Vaughan, and Ben Stiller. The movies these guys make are strictly formula—lots of parties, boob jokes, and shots of Ferrell's hairy chest or bare butt; a guy-gets-girl, guy-loses-girl, guy-gets-girl-back story line; and usually some (stuffed) animal being drop-kicked from a high place or otherwise tortured.

Still, the frat pack franchise works. On their own, each of these actors struggles to make decent movies on a consistent basis. Jack Black can be hilarious, but he's better as a sidekick than a star; Stiller has brought the Wilsons out of indie obscurity (where I preferred them, to be honest) into mainstream comedy; and, other than *Swingers* (a gem from 1996—see it if you haven't), Vaughan hasn't done anything very interesting without these guys.

So, individually? Touch and go. But together? On-screen magic, baby. Their brand of stupid sparkles.



Courtesy impawards.com

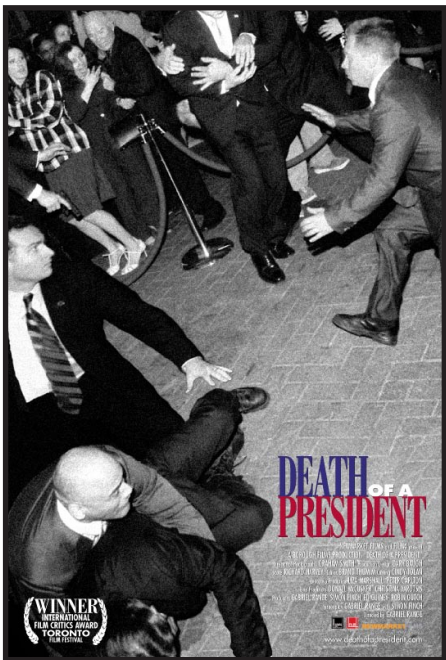
The President is Dead

Dirty Liberals Dream Big in Fake Assassination of Bush

Chris Phillips
Asst. Business Manager

Suppose someone assassinated President Bush. What would happen? How would the country act? *Death of a President* attempts to answer these questions.

Set in 2008, *Death of a President*, directed by Gabriel Range and distributed by Newmarket Films, is based on the supposition that President Bush was assassinated in 2007 after giving an economic speech. Using actual footage of Bush as well as Vice President Dick Cheney, this fake documentary follows several story lines – the potential passage of



Courtesy deathofapresident.com

“Patriot Act 3”, which would give the executive branch more investigative powers; the attempted appeal of Jamal Abu Zikri, a Syrian man convicted of the assassination, after the surfacing of new evidence; and the contemplation of now-President Cheney over whether or not to attack Syria.

Death of a President sparked a lot of controversy. Politicians from both sides of the aisle condemned it. Sen. Hillary

Rodham Clinton (D-NY) recently told *The Journal News* of Rockland, NY, “I think it’s despicable. I think it’s absolutely outrageous. That anyone would even attempt to profit on such a horrible scenario makes me sick.” Gretchen Essell, spokeswoman for the Republican Party of Texas, told BBC News, “I find this shocking, I find it disturbing. I don’t know if there are many people in America who would want to watch something like that.”

In addition to politicians, the media also rebuked the movie. Regal Entertainment Group, the largest US theater chain with over 6,300 screens, and Cinemark, which operates 4,478 screens worldwide, both refused to screen the movie. In addition to this, both CNN and NPR refused advertisements for the movie

on their networks. CNN said in a statement, “CNN has decided not to take the ad because of the extreme nature of the movie’s subject matter.”

The movie has not gone without praise, however. It received mixed critics reviews, obtaining an overall “C+” rating in Yahoo’s movie database. Furthermore, the users of the same site have also given it a “C+” rating. It also won the International Film Critics Award at the 2006 Toronto Film Festival.

If you would like to see this controversial movie for yourself, it can be found at the Starz Film Center and at the Tamarac Theater, both in Denver. Call the theaters for show times and ticket information.

“I find this shocking, I find it disturbing. I don’t know if there are many people in America who would want to watch something like that.”

COMING SOON...

-MAC Presents World Trade Center in the Ballrooms Tomorrow at 9:30 pm.

-All-American Rejects play the Fillmore on Dec. 10th.

-David Spade and Jim Bruer come to the Colorado Convention Center on the 16th.

-Twenty-Five Days ‘til 2007

Instant Wii-Play

Madness Surrounds Wii and PS3 Launch

Bruce Bugbee
Sports Editor

Ever since the age of Pong, video game fans have often times been described as fanatical in their pursuit of the latest and greatest technology. This stereotype has been anything but downplayed with the recent release of two new gaming machines on to the market—the Sony Playstation 3 and the Nintendo Wii. Both consoles join Microsoft’s Xbox 360 as the “next generation” video game experience.

Sony’s system is being touted as the next step in home theater integration due to the High Definition capabilities, internal hard drive, and a built in Blu-Ray disc player. Being such a powerful machine comes with a hefty price tag as well, with the PS3 running upwards of \$600 for the system alone.

The Nintendo Wii, on the other hand was launched with a price tag of \$250, less than half the cost of a PS3. The price is due to the lack of high definition support and an integrated DVD player of any kind. While the Wii may not have the standard video game console perks, Nintendo packed plenty of innovation into the system by making it the first machine to fully utilize motion control. The Wii controller, dubbed the “Wii-mote,” is in the shape of a normal television remote and with the help of a sensor bar set up adjacent to the system, controls the aspects of a video game based on the motions of the player. Now instead of hitting a button to perform an action, players can actually mimic the movement, be it playing tennis or shooting a rifle.

Like the Xbox 360 launch from a year ago, the Sony and Nintendo

debuts garnered vast amounts of attention as gamers literally poured into the streets in hopes of netting a system. Many stores were forced to bring in extra security in order to handle all the people.

During the Sony launch on Nov. 17th, hopeful customers camped outside retail outlets for as long as three days to guarantee a spot in line. Colorado School of Mines junior Addison Halverson lined up three days early in order to be the first person in line at the Best Buy in Lakewood, Colo. Spots in line became so coveted that Halverson denied an offer of two thousand dollars just for his spot in the line.



Courtesy Yahoo.com

Post launch sentiments from gaming fans have yielded mixed emotions concerning the new machines. Many of the new PS3 owners are experiencing problems and glitches in their systems ranging from Blu-Ray playback to controller setup. Golden High School Senior Griffin Cox, who camped outside for two days for a PS3, said “I like it and all, but it’s not as good as I expected.” Fan feelings regarding the Wii cover the opposite end of the spectrum, with gamers and non-gamers alike hailing the motion sensing capabilities as the best thing to happen to entertainment in years.

Regardless of feelings, there is no shortage of desire for either console. Both companies have sold out of all current shipments with Sony moving approximately 200,000 units while Nintendo has already passed the one million mark world wide.

One Life Not Enough?

Virtual World Nets Tangible GDP

Andrew Aschenbrener
Sports Editor

A new internet site called SecondLife.com has been making headlines recently. Second Life exists as a virtual universe, and it has been attracting people with a wide variety of interests. The Second Life world is entirely virtual, complete with a virtual economy.

Second Life was created and made available to the public by Linden Lab in 2003, and since then, it has grown to include over 1 million users, or “Residents.” It was inspired by the

novel *Snow Crash* by Neal Stephenson, and it has exploded in popularity since its inception. This is due in part to the fact that Second Life is far from just a game.

The Second Life world is entirely built by its inhabitants, and includes Residents from over 100 countries and all kinds of professions. It is already becoming a real economy, with a GDP of about \$64 million in U.S. dollars. Residents can run businesses within Second Life, known as SL, through

Linden dollars, which are exchanged for real money through Linden Labs (Linden takes a cut of all money exchanges).

Currently, Residents use SL primarily for social interaction and virtual enjoyment, and it has been compared to instant messaging like television is compared to radio. With the explosion in popularity, new uses will include work, and ultimately developers hope that it might develop into a fully-functioning world.

Arriving Shortly

...the Movies You’d Kill To See And Those That Will Die In Theatres...

By Chase Hoffman
Asst. Editor-In-Chief

Release Date: December 8th

Apocalypto
Buena Vista Pictures
Adventure/Drama, Rated R

Starring: Rudy Youngblood, Gerardo Taracena, Raoul Trujillo, Dalia Hernandez

Directed by: Mel Gibson (also directed *The Passion of the Christ*)
Summary: The Mayan Kingdom is facing decline and to counter it, they decided to do what any normal pagan culture would: build a huge temple and make human sacrifices. Jaguar Paw (Youngblood) has been selected to go under the pagan knife, but he has other plans in mind.
Impression: *The Passion* certainly wasn’t subtle by any means, so expect the same here. As far as overall effect, this one might be cool and tingle your spine. On the other hand, you will have read subtitles (unless you’re fluent in Mayan) and there will be some scenes that might lose your interest in a hurry.

Release Date: December 22nd

The Good Shepherd
Universal Pictures
Action/Drama, Rated R

Starring: Matt Damon, Robert DeNiro, Angelina Jolie, Joe Pesci
Summary: A retelling of the birth of CIA and where it actually came from

Impression: This guy should give you a quiver down your spine. All the good things about spy movies with a refreshing realism.

Release Date: December 25th

Rocky Balboa
20th Century Fox
Action/Drama, Rated PG

Starring: Sylvester Stallone, Burt Young, Antonio Tarver, Milo Ventimiglia
Summary: Rocky comes out of retirement to get into a few matches. One thing leads to another and people want him to challenge the current Champ,

Mason Dixon (Tarver).
Impression: Hopefully, they can hide the colostomy bag during those montages. There will be some repeated plots and doubts and so on and so forth, but this should be an enjoyable flick, if you don’t expect this to be an Oscar Harvest.

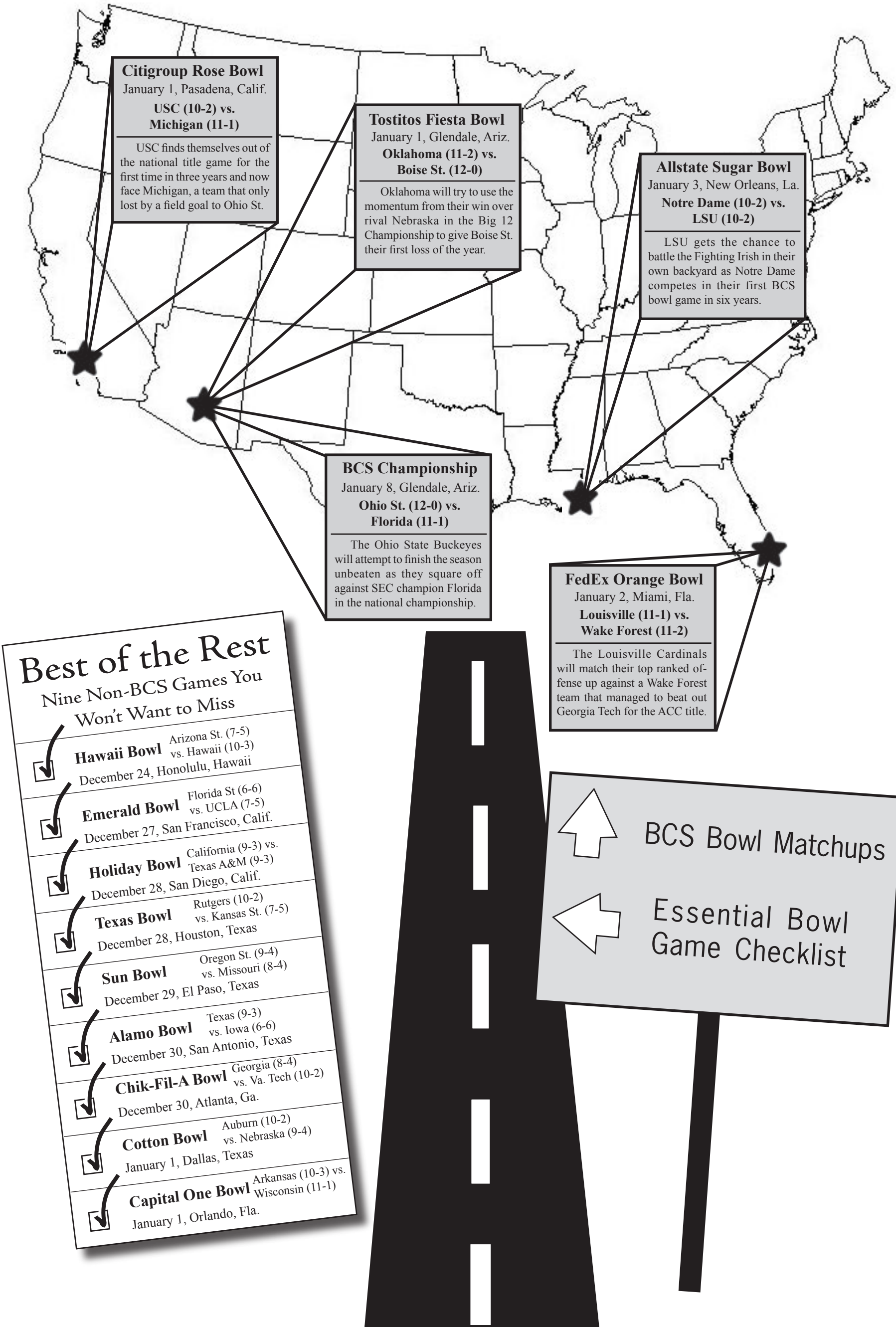
Release Date: December 15th

The Pursuit of Happyness
Columbia Pictures
Drama, Rated PG-13

Starring: Will Smith, Jaden Smith
Summary: Based on true events, Chris Gardener (W. Smith) is a struggling single father who is trying to provide for his son (J. Smith) and himself. Along this struggle, he teaches his son the importance of maintaining dreams.
Impression: Here’s a heart warmer for those softies out there. Nothing odious here. It’s worth it to note that Jaden Smith is, in fact, Will Smith’s real son as well as Will’s character’s son.

A Hitchhiker's Guide to the BCS Galaxy

An In-Depth Guide to Navigating This Year's College Football Bowl Season



Cold Reception for Rookie QB

Seattle Seahawks Edge Denver 23-20; Broncos Slide to 7-5



Courtesy ESPN

Seattle's Shaun Alexander left Denver's defense in the dust in the Seahawks win Sunday.



Courtesy ESPN

Rookie Jay Cutler made plenty of mistakes in his first start Sunday.

By Jason Fish
News Editor

Temperatures in Denver Sunday night hung around 12 oF as the Seattle Seahawks defeated the Denver Broncos with a final score of 23-20.

Denver rookie quarterback Jay Cutler took the field for the first regular season NFL game of his career, filling in for the struggling Jake Plummer.

Though both teams battled fiercely down to the final five seconds, Seattle came out on top with a 50 yard field goal by kicker Josh Brown. Brown had missed two field goals in the second quarter before hitting the mark on the game-winner.

From the start, the game went slow. Both teams traded possession three times before Denver kicker Jason Elam planted a 37 yard field goal for a 3-0 lead. Denver would add a

touchdown about five minutes into the second quarter to go up 10-0.

Seattle struggled from the start with incomplete passes across the board. Quarterback Matt Hasselbeck went 16 of 21 on the night with no touchdown passes.

The Seahawks did not score until ten minutes into the second quarter when Cutler threw a lop-sided floating pass, trying to avoid being sacked on his own 25 yard line. Seahawks defensive end Darryl Tapp intercepted the pass and ran it back for a touchdown. The extra point by Brown was good to make the game 10-7 in favor of the Broncos.

Denver committed five turnovers on the night, four by the offense. Cutler was intercepted twice and the usually dependable wide receiver Rod Smith fumbled a pass catch as he was hit by Seahawks cornerback Mark Trufant. Trufant recovered, but the

Denver defense stopped the drive.

In the closing seconds of the first half, Denver set up for a 43 yard field goal attempt by Elam on fourth and one. On the snap, place holder (and quarterback) Jake Plummer tossed the ball to Elam for a surprise option maneuver and Elam gained the first down. The Broncos let the clock tick down to one second before Elam kicked a 41 yard field goal, bringing the score to 13-7 Denver.

The game continued uneventfully after the break until just under four minutes into the fourth quarter when Denver middle linebacker Al Wilson, a leader on the defensive squad sprained his neck as he dove for a fumble. Wilson was immobilized on a stretcher and carried off the field. Post game reports said Wilson will probably return to practice next week.

On the Seahawks next possession, Hasselbeck drove his team down to

the Broncos goal line. Seattle running back Shaun Alexander carried for a one-yard touchdown. With the extra point, the Seahawks claimed the lead for the first time at 13-14 with eight minutes to go in the game.

Seattle would add two field goals in the next few minutes thanks to a second Cutler interception, gaining a lead of 20-13.

With just under three minutes left Denver suffered another loss as full-back Cecil Sapp broke his left leg after his twenty-three yard kick-off return was ended by Seahawks linebacker Niko Koutouvides. Sapp will miss the rest of the season.

On their own 29 yard line, the Broncos prepared to drive for a tie. Cutler passed on first and ten to wide receiver and fellow rookie Brandon Marshall. Marshall evaded three tackles to run for a 71-yard touchdown. Elam's extra point tied the game at

20-20 with 2:37 to go.

Those few minutes proved enough time for Seattle to reach Bronco territory draining the clock with three first downs to ten seconds. Brown took the field again and completed a 50 yard field goal, sealing the victory as the clock wound down.

The Broncos have now lost three straight games, all at home, leaving them with a 7-5 season record, third in the AFC West, and in a five-way tie for the wild card race.

Job Opportunity

After School Care

Provide after school care in our home for our two teenage children.

Golden area.

Two active kids; play sports, bike or hike the mesas.

Helping with homework.

Driving to activities.

Your car or ours, driver's license and clean driving record a must.

3:00 to 7:00

Monday thru Friday (negotiable)

Female preferred.

Craig: 303-324-1490

Men's B-Ball Buries South Dakota Mines

By Jason Harms
News Editor

The men's varsity basketball team topped the South Dakota School of Mines and Technology Friday night in non-conference play at Volk Gymnasium by a score of 73-64.

The Orediggers were led by sophomore guard Grant Gunhus scoring a career-high 17 points. All 17 by Gunhus came in the second half. Sophomore forward Cody Clickner, only playing six minutes off of the bench, added a career high 10 points and 3 rebounds. Sophomore guard Kyle Pape marked 13 points and senior forward Davey Iverson had 11 points.

Mines was a bit short-handed Friday night. Playing without injured starters Franklin Ryk and Ian

Elseth, the Orediggers were down 30-24 at the break. Opening the first couple of minutes of the second half on a 9-3 run knotted the game at 33-33. The Orediggers didn't take their first lead of the game until Gunhus nailed a three-pointer with 12:26 to play in the second half to give his team the 47-44 edge. The Orediggers never looked back from that point on and beat the Hard Rockers by 9.

In their losing effort, the South Dakota School of Mines and Technology received 22 points from Brandon Frederickson who hit 6 out of 8 three pointers. SDSM&T drops to an overall record of 5-4.

The Colorado School of Mines, now 3-2, is back in action Thursday December 7 at 8:00 pm at Western State. This game will be the first Rocky Mountain Athletic Conference (RMAC) game for both teams.

Wrestling in a Haze at Fort Hays State

Courtesy CSM Athletics

The Colorado School of Mines wrestling team competed on Saturday at the Bob Smith Open at Fort Hays State. The team was originally scheduled to compete at the Las Vegas Open, but had to change plans due to travel difficulties.

The Orediggers had two place-winners in junior 174-pounder Zac Cornett and freshman 125-pounder Geoff Meng.

Cornett, who was unseeded, opened the tournament with a 3-1 loss, but came back to win six straight matches in the wrestleback round, including two by falls, to finish third at 174 pounds. He defeated Derek Ross of Nebraska-Kearney, 3-1 (SV), in the third place match.

The third-seeded Meng, who earlier this season won the Wyoming Cowboy Open Title, posted a 3-2 record and also had two falls. Meng defeated Devin Schwartz of Fort Hays in the consolation semifinals with a fall (3:08), before losing to Kyle Patton of Fort Hays in the third place match.

CSM seniors 133-pounder Garrett Eller and senior 157-pounder Nathan Pilcher each recorded 3-2 marks and came within one match of placing. Both grapplers fell in the consolation semifinals.

The Orediggers will return to action on Friday when they travel to Air Force for a 7:00 pm nonconference match.

Get to Know Your Rocks in a Whole New Way

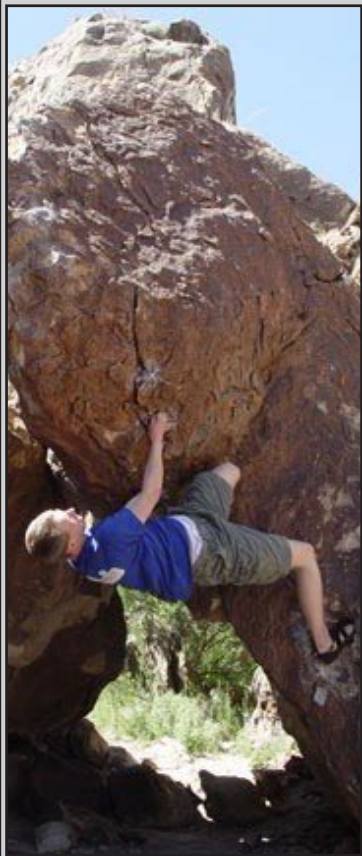


Photo Courtesy of Hans Klett

By Chris Phillips
Asst. Business Manager

You interested in Rock Climbing? Do you want to learn how but don't know how to get started? Then Introduction to Rock Climbing may be for you.

Rock Climbing will be a new PA class offered this spring, and will be taught by Rob Thompson, director of the Outdoor Recreation Center. The idea for the class came to him a few years ago when he first started at Mines, Thompson said. "It seems like a no brainer; we have lots of climbers on campus and lots of people that want to try it. Now that we are getting a sick new climbing wall it's time to make things happen. Besides, who doesn't want to take a class where you get credit to go rock climbing?"

According to Thompson, the class is geared towards beginning to intermediate climbers. "Beginner climbers will get the most out of the class but intermediate climbers should learn a few things as well," he said. "In the future I would like to be able to instruct Climbing 1 and 2 classes in the hopes of being able to offer something for everyone."

The class will be meeting on Thursdays from 2:00 – 5:20 p.m. starting March 8. The class will meet at the climbing wall in the new Student Recreation Center. Thompson explained that the class will be approximately 25% classroom instruction and 75% on the climbing wall. As for the content of the class, Thompson said, "The class will cover everything from the basics to intermediate and advanced techniques. We will cover top rope and lead climbing and belaying, climbing movement and techniques, bouldering, rappelling, anchor construction, and much more."

If you're interested in registering for the class, you'll need to go talk to the registrar's office in the Student Center. There have been problems getting the course listed on Trailhead, but Thompson wants to assure everyone that it will be offered. Also, you'll need a harness, shoes, carabiner and belay device. If you don't have your own, you can rent the entire package at the ORC for \$30 for the semester (not just the duration of the class) or you can rent them piece-by-piece as needed.

Splashing About



Courtesy wikipedia.com

By Chris Phillips
Asst. Business Manager

This can best be described as "soccer in water" according to players. This sport is Water Polo.

CSM's Water Polo team finished its season on Nov. 5 with a 0-8 record, down from last year's performance of 1-7. The team is looking to rebuild next year, according to Kristopher Davis, a Geophysics graduate student and team president. "It's a tough sport," he said, "We started the season with 12 [players] and we ended with five. Because of this, we had to forfeit our last tournament."

The team practices three times a week, and normally starts the first or second week of September. "Our first tournament is shortly after the beginning of the semester, so it's hard to get everyone in shape for it because we can't reserve the pool until after school starts," Davis said.

Although Mines hasn't had a women's team for the past couple of years, women are still encouraged to join the team. Davis said, "Even if we can't field a women's team, we can still play in the men's division with a co-ed team. Women are often a lot of help because many of the guys won't

foul them and women can often score a lot more easily because of that."

The Water Polo team is governed by the Collegiate Water Polo Association, which is made up of 126 men's teams and 98 women's teams, and is one of the nine teams in the Southwest Division. "We try to play all teams once [in the regular season]," according to Davis.

Water Polo is a sport that is played in a 30 meter pool with two teams of seven players. During the seven-minute quarters, teams attempt to shoot the ball past the goalie, who is the only person on the team who is allowed to touch the ball with two hands. Many fouls are called, said Davis, because that's a part of the strategy. "You try to get to the two meter line and wait for the ball so you can take a shot. Often times that person will be fouled so that he doesn't score."

If you are looking to join in on the happenings of the Water Polo team, you can get in touch with them through their Yahoo! Groups site at <http://groups.yahoo.com/group/mineswaterpolo>.

Martially Spirited Campus

By Lillian Giddings
Staff Writer

The Colorado School of Mines is known for its diversity in the activities and clubs available to students. Among these, there is a variety of martial arts offered for all skill levels: this includes taekwondo, karate, aikido and kendo.

Taekwondo is a mixture of Japanese, Chinese, and Korean fighting arts. The name literally means "the way of the foot and the fist" and aptly so: taekwondo emphasizes the use of kicks more than many other martial arts. The sport also uses hand techniques and blocks in the exercises. There are three levels of kata; students that wish to test must learn one of each level in order to be considered for a test. The club at Mines welcomes all experience levels to the class.

Karate is another of the martial arts offered at Mines. Students are encouraged to learn kihon (basic techniques), kata (patterns of techniques), and



Eileen Sullivan/Oredigg

kumite (sparring). The class focuses not only on the physical aspects of the sport, but also on the mental facets. Every move has alternatives that do not seem obvious to those who have not studied the sport, which the sensei may choose to show to students in the course of practice. The variety highlighted at Mines is Shotokan karate, a variation coming from Okinawa.

Aikido is a martial art focused on self-defense without inflicting permanent injury. The object of practicing aikido is to be able to deflect an opponent's energy away from oneself. As a result, many blocks, throws and body

locks are used. Aikido is offered as a class at Mines, with Joe Crocker as the instructor. Students may receive PA credit for participation.

Kendo is the art of Japanese fencing. The "swords" used in practice are split bamboo rods. Techniques are targeted exclusively at the head and body, and points in sparring matches are awarded with regard to accuracy and spirit. Kendo has its own set of kata that aid students in learning the art.

All of the above martial arts have their own distinctions, but they are similar in many ways as well. They all focus on the mental aspect of participation as well. "It's really about finding a balance between the mind and the body" says Mark Chung. Martial art practitioners are encouraged to think about the techniques they practice and new ways they can be used. Above all, martial arts are to be used for self defense, not as a first choice in arguments. "Knowing how to protect yourself can give you confidence, and that's really what's important to me" says Jason Dardano.

Job Opportunity After School Care

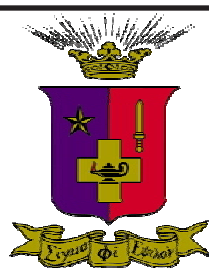
- Provide after school care in our home for our two teenage children within the hours of 3:00pm to 7:00pm, Monday thru Friday (negotiable).
- Two active teenagers who love to play sports, bike and hike the mesas.
- Other duties include helping with homework and driving them to and from activities.
- Owning a vehicle not necessary, but driver's license and clean driving record required.
- Female preferred.

Contact Craig at (303) 324-1490

Listen to MIR



mines.radio.edu



Missed Recruitment in the Fall?????

DON'T WORRY!!!!!!

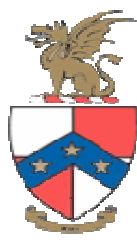
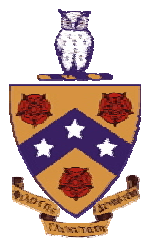
Spring Recruitment is Just Around the Corner

January 15 – 19

Free Food, Activities, and Events!

For more information

Contact Marc Guerra at ma Guerra@mines.edu for more information



FINALS
WEEK
Library

Fri 12/8:
7:30am-12:00am

Sat 12/9:
7:30am-10:00pm

Sun 12/10:
9:00am-12:00am

Mon 12/11:
7:30am-2:00am

Tue 12/12:
7:30am-2:00am

Wed 12/13:
7:30am-12:00am

Thr 12/14:
7:30am-6:00pm

Fri 12/15:
7:30am-5:00pm

Sat 12/16:
9:00am-5:00pm

Sun 12/17:
CLOSED

Coffee Cart

Mon-Thur:
7:30am-9:00pm
Fri: 7:30am-3:00pm
Sat: 9:00am-1:00pm
Sun: 5:00pm-9:00pm

Finals Schedule

Fall Semester

	Saturday, December 9, 2006	Monday, December 11, 2006	Tuesday, December 12, 2006	Wednesday, December 13, 2006	Thursday, December 14, 2006
8am - 10am	MACS 213, 315, 348	CHGN 121/124	DCGN 381 PHGN 100/200	EGGN 388 MACS 260 MACS 261 MASC 262	1:00, 1:30, 2:00 TR
10:15am - 12:15pm	MACS 111,112, 122, 224	9:00, 9:30, 10:00 TR	9:00 MWF	10:00 MWF	
1pm - 3pm	DCGN 241 EGGN 320 MACS 323	DCGN 210 EGGN 351	EGGN 371 SYGN 101	8:00 MWF 10:30 11:00, 11:30 TR	
3:15pm - 5:15pm	11:00 MWF	2:00 MWF	1:00 MWF	12:00 MWF 4:00 or after/evening TR	
7pm - 9pm	EBGN 201 EGGN 315	4:00 or after/evening MWF 12:00, 12:30 TR	2:30, 3:00, 3:30 TR	8:00, 8:30 TR 3:00 MWF	

Number Theory

**7,000
trillion
years**

Estimated time it would take the world's fastest super-computer to find the two prime numbers that make up a 300-digit prime product ₁

**< 3
days**

The estimated time it would take a quantum computer to perform the same computation ₁

0.05%

The blood-alcohol equivalent of the decrease in performance that is the result of 17 hours of being awake without sleep ₂

16%

The NRMA estimates fatigue is involved in one in 6 fatal road accidents or around 16% ₂

1. <http://www.adrianberry.net/coolf.htm>

2. <http://abc.net.au/science/sleep/facts.htm>

Potent Quota-babbles



"Well, what I'm tellin' you, is I think you're takin' it too seriously. You have a predominantly Christian nation. You have a federal holiday based on the philosopher Jesus. And you don't wanna hear about it? Come on -- if you are really offended, you gotta go to Israel then."

- Bill O'Reilly, speaking to a **Jewish** caller
The Radio Factor
Dec 7th, 2004

"Listen, as far as the war on Christmas goes, I feel like we should be waging a war on Christmas. I mean, I believe that Christmas, it's almost proven that Christmas has nuclear weapons, can be an imminent threat to this country, that they have operative ties with terrorists and I believe that we should sacrifice thousands of American lives in pursuit of this war on Christmas."

-Sam Seder of Air America radio on CNN, Dec 12, 2005



As the 'War on Christmas' rages on...

**"Enjoy your
winter break"**



- The Oredigger

.....
You thought finals week was bad...

